desoldering

a craft in its own right

By K. Walraven

We can assume that the majority of our readers have sufficiently mastered the noble art of soldering. However, the art of unsoldering already soldered components, or desoldering, is something else. Even rather experienced solder artists often prove to be extremely clumsy in this area. They go about it the wrong way, and lacking both patience and the right touch, they tend to mess around until they have ruined not only the component but also the printed circuit board.

PUMPING OR SUCKING?

The only good way to desolder is to patiently remove all of the solder from the points where the component is attached to the circuit board. This can be done using a special ‘solder-sucker’ soldering iron, a vacuum pump or desoldering braid.

Of these various options, the vacuum pump and the special soldering iron may seem to be the most convenient at first glance, but in practice this is not so. The nozzles of these tools are easily clogged, and the sucking action is not always perfect. If you use a separate pump, you have to heat the solder joint quite strongly, which is in itself risky. Even then you have to quickly switch between the soldering iron and the pump, since otherwise the solder will cool down and become hard again.

In short, even though using desoldering braid may appear to be the most primitive of the three options, our experience in the Elektor lab is that it yields the best results.

BRAIDED WIRE

Desoldering braid or ‘Wick’ is actually a braided wire ribbon consisting of thin copper wires together with impregnated solder flux. The spaces between the wires soak up the solder, so that it is removed from the place where it is no longer desired. Desoldering braid can be obtained in small rolls a few metres long (see **Figure 1**).

Using desoldering braid is very easy. Before you start, remember that solder flows best when it is good and hot. You should thus not use too small a soldering iron. If you have a temperature-controlled soldering iron, set it to at least 350 degrees. Now all you have to do is to make sure that the desoldering braid is hotter than the joint that is to be desoldered, since the solder will

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flow to the hottest point.

Proceed as follows:

- First place a clean piece of desoldering braid on the solder joint that you want to remove, and then place the tip of the soldering iron on top of the braid.
- Now press quite firmly with the soldering iron, to make good thermal contact (see **Figure 2**). The solder will be drawn into the braid.
- As soon as the braid is saturated, it will not absorb any more solder. You can easily see how saturated it is from its colour. It is initially copper-coloured, but becomes increasingly silver-coloured as it absorbs more and more solder (see **Figure 3**).

In order to fully clean the solder from a joint, you sometimes have to work in two steps. In the first step you remove most of the solder. After this, you can slowly draw the braid along under the soldering iron, while holding the soldering iron stationary (this takes a bit of practice). Following this, you can remove the last remains of the solder with a fresh, unused piece of desoldering braid.

FLUX

Once you have gained some experience in working with desoldering braid, you will quickly realize that this technique works well only if sufficient flux is present. If there is not enough flux, even liquid solder simply forms a ball and will not soak into the braid.

Sometimes certain parts of the braid do not have enough flux. This can be caused, for example, by repeated flexing of the braid at a particular location.

This fault can be remedied by putting additional flux on the solder joint that is to be removed. You can buy flux paste in tubes for this purpose. You can also use violinist's rosin, which is available in small tins, to impregnate the braid. Since rosin is hard, getting it into the braid is a bit tricky. Set your soldering iron to a low temperature (100 to 150 degrees); if you do not have a regulated iron, you will just have to be quick. Lay a small piece of braid on the surface of the rosin and warm the braid from the top with the soldering iron (see **Figure 4**). The rosin will melt and soak into the braid. Hold the iron stationary and pull the braid through underneath it.

You can also make your own desoldering braid in this manner. You can use any piece of stranded wire (from a bit of mains cable, for example) — just remove the insulation and impregnate it with flux. This is handy to know if you run out of desoldering braid, or simply find it too expensive.

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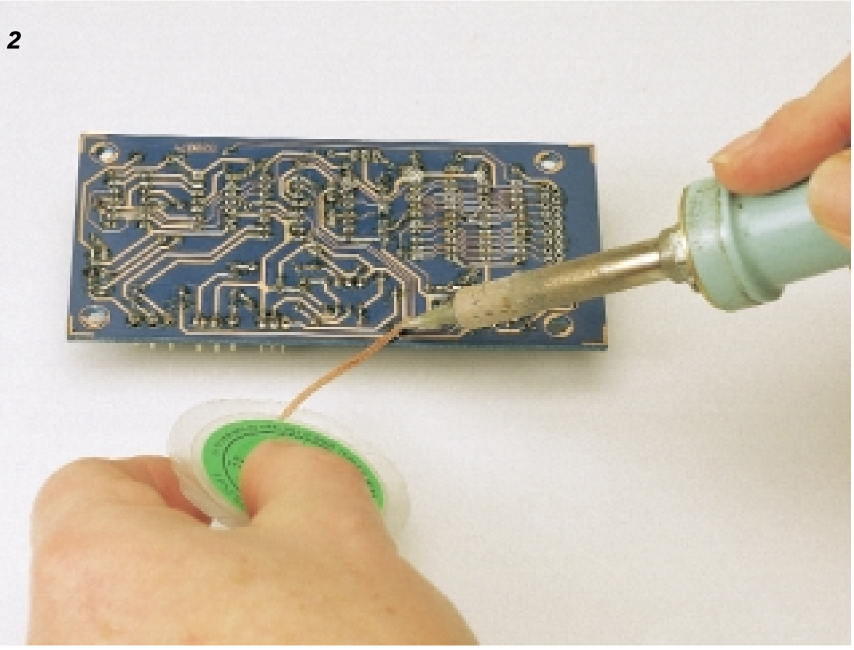

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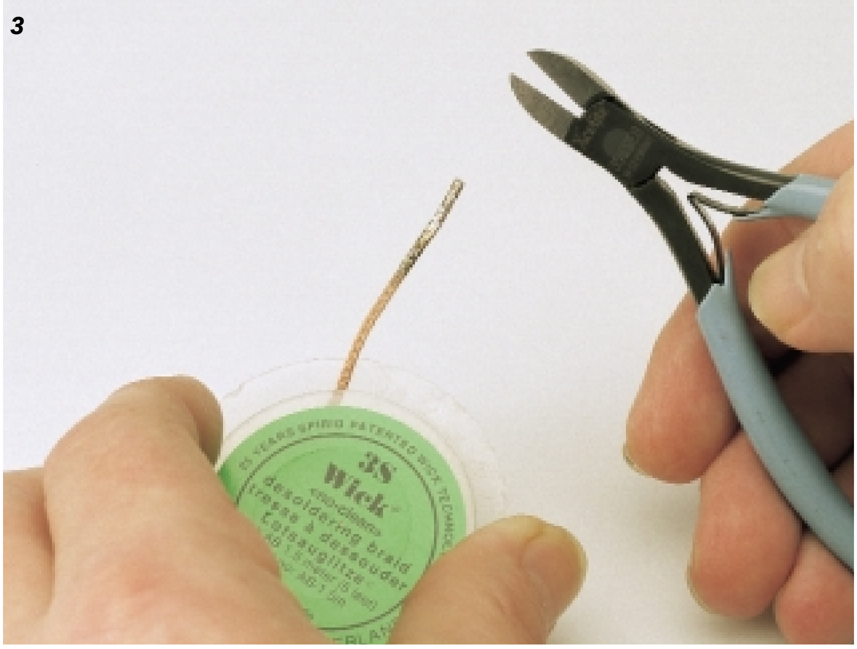

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